

# DEACTIVATION COMPLETION AND TURNOVER

## Deactivation Completion and Turnover

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**Overview of Turnover**  
**Turnover Checklists**  
**End-Points Closeout Method**  
**End-Point Files Description**  
**Examples of End-Point Closeout Methods**  
**Closeout Method**

### **Subjects of This Chapter**

Achieving consensus that deactivation is complete can involve several parties including the deactivation contractor, the Field Office, DOE Headquarters, the post-deactivation contractor, regulators, and stakeholders.

- Overview of Turnover
- Turnover Checklists and Documents
- End-Points Closeout and Verification

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## Overview of Turnover

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When facility deactivation activities are complete, some of the possibilities for the subsequent receiving organization include:

- In cases of facilities that are contaminated, turnover to a remediation organization for managing post-deactivation surveillance and maintenance, and final disposition.
- Retention by the same organization but with a different budget.
- Turnover to another host agency where the facility is to be used for another purpose by the U.S. government.
- Granted or sold to a public or private party.

To the extent there is a policy and/or budgetary issue associated with turnover, both headquarters line and field office should concur on the receiving organization. The determination of alternatives for, and agreement on the final condition of the facility must be complete before it is transferred to the receiving organization. In addition, funds required to perform post-deactivation surveillance and maintenance must be identified with a lead-time sufficient for any necessary budgetary action.

When the receiving organization is identified, details of the conditions to be achieved for facility turnover must be agreed to between representatives of the deactivation organization and the receiving organization. This agreement should occur early for facility deactivation planning and must be reflected in the end-point process.

The steps to reaching this agreement and achieving turnover are:

1) With respect to the S&M plan:

- The deactivation and the receiving organization look ahead to the likely post-deactivation surveillance and maintenance requirements during the period following deactivation and prior to ultimate disposition. These requirements must be explicit and specific to the facility.
- The surveillance and maintenance requirements are then used to develop a plan for the post-

deactivation surveillance and maintenance period. The details of this plan depend on the degree of the facility's potential threat to workers, the public, and the environment.

- The conditions necessary to conduct the required surveillance and maintenance become deactivation end-points, among others. Based on appropriate discussion and iteration, the deactivation organization and the receiving organization field offices and contractors reach concurrence on those end-points directly affected by surveillance and maintenance plans.
- 2) When feasible to do so, the ultimate approach to decommissioning is examined. When supported by reasonable or obvious presumptions, the use of existing systems and equipment (e.g., overhead cranes) in decommissioning is considered in establishing end-points.
- 3) End-Point criteria are established. The field office and receiving contractor participate in and agree to the end-point specifications at appropriate levels (e. g., field office at level 1 and 2; deactivating and post-deactivation contractors at level 3).
- 4) The field contractor deactivates the facility to the end-points agreed upon by the deactivating and post-deactivation organizations. If, during deactivation, reasons arise for modifying the end-point specifications, the receiving organization must consider that change. Examples of reasons for reconsideration are: costs may be too high for a marginal benefit; or conversely, for a relatively small incremental cost, a much-enhanced condition can be achieved for ultimate decontamination and dismantlement. When appropriate to modify a prior agreement, both organizations must concur.
- 5) A formal turnover process document is utilized to establish completion of the end-points by the deactivation organization and verification of end-points completion by the post-deactivation organization.

Turnover is accomplished when deactivation end-points are achieved, conditions for surveillance and maintenance are set, and the receiving organization takes responsibility.

Demonstrating completion can lead to several possible types of end-points-related deactivation documents:

- End-Point Document - Specifies in detail end-points for deactivation of a facility.
- End-Point Work Plans - For specifying how the work was to be accomplished.
- Post-Deactivation S&M Plan (Preliminary) - A post-deactivation Surveillance and Maintenance (S&M) plan that provides one of the major bases for detailed end-points specification.
- End-Point Completion Report - A report that verifies and archives the accomplishment of end-points.

There will be other documents at the completion of the work, for example, as listed in the three turnover package checklist examples tabulated in this chapter.

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## Turnover Checklists

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Three types of turnover packages are described here. However, the needs will vary from project to project since the facilities are different. The level of detail will depend on conditions, requirements, and agreements specific to the facility. Therefore, each project must *determine what needs to be created* for purposes of completion and turnover. As further experience is gained, a standard approach may evolve. The three types of turnover documentation presented here are:

- **Administrative Turnover Package** - Administrative turnover consists of a collection of administrative documents for which example items are in **Table 1**. This includes procedures, agreements, permits, and other documents not directly related to the physical facility.
- **Technical Turnover Package** - **Table 2** is an example list of documents that describe the facility, its equipment, and the conditions at completion of deactivation.
- **S&M Turnover Package/Documents** - The surveillance and maintenance turnover package consists of documents that may have been created; **Table 3** is an example list.

It is emphasized that these are examples based on experience of a limited number of facilities, and that each project must be specifically planned.

**Table 1 - Administrative Turnover Package Checklist Items**

(X)	Type of Documentation
	Safe Shutdown and Deactivation Report. This is a management summary of the facility deactivation completion, general status and conditions, demonstrating conformance with DOE's specification of the overall end-state. It should identify management actions needed that are not routine. Unresolved issues should also be described. The report should reference the <u>End-Point Completion Report</u> (See Table 2), but not repeat the information there.
	Emergency response plan revised for the deactivated state. Include response to fire, flood, severe storms, and other naturally or humanly caused events.
	Provide the most current safety documentation for each facility, such as a description of the safety envelope currently in place. Status of planned actions related to SARs, OSRs, TSRs, process hazards reviews, and implementing procedures covering the current status of the facility. Copy of TSR surveillance program description and statement of compliance with TSRs. Definition of the scope and estimate of the costs to bring the facility into compliance with OSRs in force, or recommended to be in force, and work packages to accomplish such compliance.
	Provide the status/compliance of all regulatory commitments; for example, status of compliance with applicable regulations promulgated pursuant to statutes, such as Occupational Safety and Health Administration (OSHA), RCRA, CERCLA, and NEPA and the remediation process in the National Contingency Plan.
	Provide the status of Interagency Agreements that identify the terms and milestones of agreements pending and entered into by DOE with Federal, state, and local agencies and the status of compliance. This includes settlement agreements, administrative or consent orders, and compliance plans to settle outstanding notices of violation.
	Provide the status of existing permits, including National Pollutant Discharge Elimination System (NPDES), air permits, RCRA, and others.
	Provide the status of Corrective Actions by providing a list of corrective actions, completed and outstanding, from previous audits, inspections, and other similar activities (e.g., Tiger Team, Technical Safety Appraisal, Defense Nuclear Facility Safety Board, regulatory agencies, self-assessments, business systems review), including identification of those items that need to be evaluated and reviewed with respect to the facility's excess condition.
	Provide a list of items and activities that must be performed to complete deactivation after turnover. It would not be unusual to have work items which for some reason could not be completed prior to a logical turnover date and that would have been negotiated with/agreed to by the receiving organization.
	Deactivation Locks Log and keys - A formally administered "Deactivation Lock System" may be established. Deactivation locks may be used for facility access, isolation of electrical components, chaining of valves, and other situations where physical access is to be controlled. The primary purpose of such a system would be to ensure control as the work force "backs out" of the facility as specified end-points are achieved.

**Table 2 - Technical Turnover Package Checklist Items**

(X)	Type of Documentation
	Complete and document the final deactivation/shutdown of the facility. Include deactivation work plans and work packages as they were at completion of deactivation. The work plans may be part of the end-point completion report.
	End-Point Completion Report - Validation of end-points. For example, using sample forms provided in this handbook, this report could be primarily all the end-point forms with completion signatures.
	End-Point Technical Information - All documented technical criteria bases to which end-points are referenced.
	As-Left Condition - Include a summary of the overall physical status of the buildings and systems, and major equipment. Address access control and isolation of fluid and electrical systems. Status

	of fire and flood protection should be stated. If there are any unique structural anomalies, they should be described. If fixed in place, potentially hazardous materials that have been left in the facility should also be mentioned. See Appendix A under "Background" for an example of such a summary.
	Facility, room, and cell arrangement drawings - to the extent they exist. If significant changes were made for deactivation, some form of documentation would be useful. However, except in unique circumstances, as-builts of such changes should not be necessary!
	Description/photos of spaces for which access is not anticipated during S&M.
	<p>Establish and archive records for:</p> <ul style="list-style-type: none"> <li>Reactivating future decommissioning essential systems</li> <li>Characterization useful for future decommissioning</li> </ul> <p>Include equipment Technical Manuals and other information for equipment that remains operational or is mothballed - to the extent that it exists - do not create new material if it does not exist.</p>
	Provide current status (including drawings) of the deactivation/safe shutdown (if applicable). The documentation should address systems, such as the water, sewer, air, electric, gas, process (mechanical and chemical) and fire protection systems.
	Location of <u>fixed</u> hazardous materials, wastes, and contamination with characterization information.
	Inventory and Safeguards and Security provision for nuclear or other material remaining in the facility for which there is a requirement for accountability or protection from diversion.
	Inventory of chemical and hazardous substances remaining, if any, and characterization information.
	Inventory of radioactive and fissile material remaining as contamination with characterization information.
	For structures at the facility, provide the final radiological/hazardous materials survey records, final configuration and surveillance and maintenance requirements, available drawings, specifications, procedures, manuals, and unplanned occurrences records applicable to the facility.
	For soil, surface water, and groundwater conditions at the facility, provide all available data and reports that describe those conditions and the nature and extent of contamination therein. Also identify any known assessment requirements.

**Table 3 - S&M Turnover Package Checklist Items**

(X)	Type of Documentation
	Post-Deactivation S&M Plan
	Post-Deactivation S&M Updated Effluent Monitoring Plan
	Post-Deactivation S&M Updated Safety Equipment List
	Post-Deactivation S&M Procedures
	Post-Deactivation S&M Recommendations (Inspections, maintenance, etc.)
	Post-Deactivation photographic and/or video & audio record of the facility as-left conditions

## End-Points Closeout Method

As stated in **DOE G 430.1-3, DEACTIVATION IMPLEMENTATION GUIDE**, the completion of the deactivation project will be determined by verifying that the end state has been achieved and the end-points have been met. End-Point files provide evidence of the facility deactivation and contain historical information pertaining to its as-left condition. "Closeout" refers to the method for verifying that each end-point has been achieved. The purpose of end-point closeout is to formally demonstrate completion to support possible audits and regulatory oversight, and to demonstrate progress toward commitments to stakeholders. Such

verification can also serve to support quality control and quality assurance provisions when appropriate (Personnel reviewing the files for closeout need to have a basic understanding of the End Point Process, Facility Layout, Radiological Practices, Hazardous Materials, Industrial Safety, and other related subjects).

One of the tasks of the end-point coordinator should be to establish the method of end-point closeout. The purpose here is to provide an example of how to do this.

Acceptance that conditions stated by end-point specifications have been achieved is recorded in the end-point document by the signatures of representatives of both the deactivation and receiving organizations. The method(s) by which closeout of each end-point is verified, as discussed here, should also be indicated in the end-point document. For example, a closeout method "key" as described later can be written in the reference space on the signature block. The method description, such as the example here, should also be kept with the end-point closeout files.

An end-point may be closed using one or more of the methods that follow. Deciding the type of closeout depends on the nature of the actual end-point (risk or hazards involved). In most cases, the decision is left to the individuals or team that are conducting the closeout verifications (or inspections). In some cases, the type of closeout to use should be decided by facility management. Designating which end-point closeouts require management decisions should be done when the end-point document is being approved.

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## End-Point Files Description

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The end-point files should be arranged consistent with the order of the table of contents for the end-point document. (Example; at PUREX, the document is arranged by numerical building number and then alphabetically for the remainder of the facility spaces or systems. The facility was broken down into 56 separate areas. Each area is made up of distinct spaces and/or systems. Each area has its own file folder that contains the specific end-point files for the designated space or system within the area. For example, the Aqueous Make-up area file folder contains 5 individually marked files containing the set of applicable end-points for the space or system designated.)

Table 4 is a description of individually assigned drawers or sections of the end-point file cabinets and a description of their contents. Additional drawers are used to file the remaining documentation that will be generated or are references for turnover of the facility.

**Table 4 - End-Point Files**

Drawer	Typical Contents
Workplan	All of the work plans referenced for end-point closeout. The drawer is indexed for ready retrieval.  The reference block on the end-point signature page should contain the index, identifier, or number of the workplan used to record closeout of the end-point.
Video Tapes	All of the video tapes (or other visual recording media) that have been referenced for end-point closeout as well as others that may have value for future reference. The drawer is indexed for ready retrieval.  The reference block on the end-point signature page should contain the index, identifier, or number of the video used to record closeout of the end-point.
Turnover Package	Information generated to comply with the global administrative turnover package end-state. Examples found here can include documents such as a Confined Space index, a Hazardous Material Remaining list, an Asbestos Summary, and Hazard Communication Program Information. The intent of filing the turnover package information separately from the

	<p>individual space or system closeout information is to allow the information to be available for quick reference by the S&amp;M planners and workers.</p> <p>The reference block on the end-point signature page will indicate the Turnover Package used to record closeout of the end-point.</p>
Radiological Maps And Postings	Binders containing the Final Radiological Maps and surveys that are generated to give radiological characterization of a specific space. In addition, a binder containing verification of proper radiological status for the applicable space is stored here. Prior to turnover of the facility the Radiological Posting book and Fixed contamination logs will also be stored here.
EPTI	The End-Point Technical Information (EPTI) book is stored here. EPTI information is a compilation of documentation that is intended to support end-point conclusions. Items found here include current revisions of procedures and/or documents to capture information referenced in the specific end-points.
Administrative End-Point	Documentation collected to close the Administrative End-Points. These end-points are global to the entire deactivation project or apply to every space and system of the facility.

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## Examples of End-Point Closeout Methods

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### **Visual**

Visual verification is defined as a walkthrough or visual inspection of the space or system verifying the stated condition or intent of the end-point has been met. This method is used if documentation is not required to perform and/or indicate the full scope of work required to achieve closeout. Examples where visual verification would be used as closeout are housekeeping, fire extinguisher removal, vermin isolation etc.

In addition visual verification by Subject Matter Experts (SME) may be used to verify field conditions (i.e., Asbestos) prior to the closeout of the administrative end-points listed under the "Turnover Package" end-point.

### **Work Plans**

A signed copy or portions applicable, of the work plan that was written to provide detailed work instructions of the work scope necessary to achieve the stated condition or intent of the end-point specification. Because multiple end-point completion can be achieved with a single work plan, a common indexed Work Plan file should be used for closeout records.

### **Work Orders**

A work order is usually one or two pages, which distinguishes it from a work plan. A signed copy of the work order, or applicable portions of the work package, that accomplishes the end-point is placed in the applicable end-point file for easy reference.

### **Drawings/ECNs**

Copies of the essential drawing indicating "redlined" portions that reflect as-left configurations and or Engineering Change Notices (ECNs) can be used to record acceptable conditions. These copies are placed in the applicable end-point file for easy reference.

ECN copies used to record completion of the stated end-point condition are placed in the file folder for the space or system. These copies may indicate redline configuration changes.

### **Letters/Summaries/Memos**

Specific letters, summaries, or memos recording concurrence, explanations or descriptions of activities leading up to closeout of the stated condition or intent of the end-point. They are uniquely identified for traceability throughout the filing system. They are placed in the applicable end-point file for easy reference.

### **Audits/Assessments/Inspections**

Reports, letters, or electronic messages written to record audits, inspections or assessments performed to support closeout of the stated condition or intent of the end-point. Examples include the Confined Space Audit and Asbestos survey. Note: Visual verification may be used as the reference to indicate that field conditions are acceptable prior to turnover of the administrative portion of the end-point.

### **Video/Photos**

Video tapes are used in some cases to record that the end-point stated condition or intent has been achieved. Videos or photographic descriptions are prudent for most spaces where access is not expected by the post-deactivation surveillance workers. Note: Upon viewing of the tape visual verification may be used as the reference to indicate that field conditions are acceptable. Video viewing is used to minimize waste and ALARA concerns created by additional manned entries to a space.

### **Waiver/Justification Of Change**

Waivers written to justify changes of intent or work scope stated by the end-point are written and concurred by both deactivation and post-deactivation receiving representatives. Major modifications to the end-point document require a revision or page change to be completed. Copies of the waiver memo are placed in the specific space or systems file and used as the documentation to support closeout of the end-point.

### **Radiological Surveys**

Specific radiological surveys are used to record the stated condition or intent of the end-point. For example, a survey performed to verify that contamination is fixed in place can be used to close a "mitigate contamination migration" end-point. Copies of the survey are attached to a memo explaining the relationship of the survey to the end-point. Copies of the memo are placed in both the specific space or system file and the radiological records for easy reference.

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## **Closeout Method**

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The method(s) by which closeout of each end-point is verified should be indicated in the end-point document. One way to do this is to use a closeout method in a reference space on the signature block, and described here. In addition all documents written to close a specific end-point should be assigned a unique number for traceability throughout the files. Where applicable, the document reference should also be written on the reference space to provide linkage.

The abbreviations in Table 5 are used to signify the closeout method and/or document used to closeout (verify) the end-points.

**Table 5 - Abbreviations for Closeout Signoff**

<b>Reference</b>	<b>Description</b>
C. S. Index	The Confined Space Index was field verified prior to closeout of the individual space end-points. This index will be used for a final Confined Space report to be completed prior to closeout of the Turnover Package administrative end-point.
ECN	Engineering Change Notices (ECN) copies used to document completion of the stated end-point condition will be placed in the space or system file folder. These copies may indicate

	redline configuration changes.
I. S. Cklst	An Industrial Safety Checklist filled out in the field by the industrial safety experts for the deactivation and receiving organizations. Copies are placed in the space or system file folders. The originals are retained by the industrial safety representative and will be used for a final industrial safety report to be completed prior to closeout of the Turnover Package administrative end-point.
Ltr	Uniquely numbered letters written to summarize the completion of activities or conditions required to close the end-point.
Memo	Uniquely numbered memo written to summarize the completion of activities or conditions required to close the end-point.
None	"None" is used as a statement-of-fact as determined by the SME of the applicable end-point. For example if no asbestos is present in a space "None" would be referenced and the end-point would be closed.
Photos	Photos taken to record the stated condition or intent of the end-point. These are either collected in album and indexed to allow linkage to the space or system end-point, or copies are placed in the space or system file folder.
Rad Posting Book	Memos are written verifying the radiological postings of the space or system. Copies of these memos are collected in a "Radiological Posting End-Point Book."
S&M Plan	Refers to the Surveillance and Maintenance Plan in the Turnover Package drawer.
SD	Copies of Supporting Documents (SD) written to provide detailed descriptions or explanations supporting completion of the stated end-point condition are placed in the specific space or system file folders.
Structural Cklst	Checklist documenting structural adequacy. The checklist is completed by a qualified structural engineer. Copies are placed in the space or system file folder.
Survey #	Uniquely numbered radiological surveys taken to specifically support closeout of a radiological end-point. Record copies are sent to Records holdings with copies placed in the specific space or system file folders.
Survey Book	Survey maps are created to support closeout of the Final radiological survey and map end-point. These maps are collected in the Radiological Survey/Map book along with a copy of the radiological survey from which the data was taken from. Record copies of the surveys are sent to Records holdings.
T. Package	Turnover Package Items will be field verified prior to closeout of the administrative Turnover Package end-point. Documentation for end-point items requiring field verification for closeout i.e. Confined Space, Asbestos and Remaining Hazardous Materials lists will be placed in a separate Turnover Package file drawer.
Video	Video tapes taken to record the stated condition or intent of the end-point. These video tapes are collected in the video tape drawer and indexed to allow linkage to the space or system end-point.
Visual	Visual verification is defined as a walkthrough or visual inspection of the space or system verifying the stated condition or intent of the end-point has been met. If supporting documentation was available this information was placed in the space or system file folder.
W. Order	Work Orders written to perform activities that support closeout of a specific end-point or that records the stated condition will be placed in the space or system file folder.
WP-xx-xxx	Work Plans written to perform activities to support closeout of specific end-points or that record stated conditions will be placed in a separate file drawer due to multiple end-point closeout by the same work plan.